Technical Reports

Design of a Procedure for Health Screening of Rural Adolescents

FRANCES FRIEWER, M.S., EVELYN RIMEL, Ph.D., ELLEN ERLANDSON, M.S., and ALLEN WATSON

TODAY rural young people have limited access to professional care because most health professionals are concentrated in urban areas. The medical and dental problems of these young people are similar to those of their urban contemporaries. In addition, many rural families have low incomes, and the children receive less than the minimum care received by their urban peers.

Miss Friewer is laboratory evaluator, Health Care Facilities, Illinois Department of Public Health. Dr. Rimel is professor, education and psychology, Stout State University, Menomonie, Wis., and president, West Central Wisconsin Community Action Agency, Inc. Miss Erlandson is education consultant, Wisconsin State Division of Health, Eau Claire. Mr. Watson is a graduate student at Stout State University. Tearsheet requests to Miss Frances Friewer, 1822 South 6th Street, Springfield, Ill. 62703.

Ideally, all young people should have complete medical and dental examinations and regular medical and dental care to enhance opportunities to achieve on the job and to live fully. In rural areas, however, the few already overworked health professionals cannot perform all the necessary examinations.

The West Central Wisconsin Community Action Agency, Inc. (West CAP), an agency of the Office of Economic Opportunity in Menomonie, was confronted with the health problems of youth in recruiting young people for Neighborhood Youth Corps (NYC) jobs. The NYC had been arranging with local employers to give youths from low-income families meaningful summer job experience. The program was supplemented by NYC counseling on employer-employee relationships. Employers and counselors in past programs had noted many health needs of these young people.

Under the West CAP umbrella, both NYC and Rural Health Services worked on the project. Rural Health Services operated a mobile health unit in the same geographic area but was concerned with assessing the health needs of the entire family and with bringing the most needy to local health professionals for care.

The director of West CAP asked that the two groups combine efforts so that NYC's very limited funds—less than $2 per student for health needs—were used only for the youths who had no other care available.

NYC Youth Selected

The team that visited participating schools consisted of two administrative staff workers from NYC, the health coordinator from the community action agency, and one or two health aides from Rural Health Services. At this time prospective NYC enrollees, previously interviewed for summer jobs and meeting OEO's income requirements, were asked to report for preemployment counseling and planning.

The 377 students in the program had registered with the NYC from several high schools in a seven-county area in rural west central Wisconsin. The 162 boys and 215 girls were white, between the ages of 15 and 18 years, and members of a relatively stable farm and smalltown population. Their homes were scattered over an area of more than 5,000 square miles.

Members of the Chippewa County Medical Society and the Northwest Wisconsin Dental Society were contacted for advice and suggestions on health aspects of the project, and they reported the activities of West CAP to their societies. Consultants in public health also aided in the data preparation. With our limited budget, a screening procedure seemed to be the most realistic means of detecting the greatest number of unmet health needs of these rural adolescents.

The screening was done by rural health aides and NYC counselors from West CAP with occasional help from a volunteer nurse. The health coordinator and health educator participated in most of the personal interviews. They also evaluated the students' acceptance of the procedure and observed it in action. West CAP used staff members and volunteers so that most of the existing funds could be used to pay for professional care needed.

The young people who participated were chosen for the program according to guidelines set up for the Neighborhood Youth Corps (*1*). A breakdown by age and sex follows.

Age and sex	*Number*
Age 15	33
Boys	16
Girls	17
Age 16	205
Boys	95
Girls	110
Age 17	122
Boys	40
Girls	82
Age 18	17
Boys	11
Girls	6
Total	377

Information Sought

Information regarded as most important for screening purposes included family and personal health histories, health knowledge, health practices, concepts of community health, and indicators of healthy interpersonal relationships.

The screening process was designed to create an awareness of personal and community health, to give health information on a one-to-one basis, and to encourage these young people to seek better health or, if their health was good, to maintain it.

We hoped to find answers to these questions. Do rural youth in the NYC really have unmet needs? How many families cannot meet these needs financially? What are the general health patterns of the enrollees? Do they have physical conditions which might restrict their work assignments?

A series of questions were developed to elicit the information we considered important. Because some of the questions pertained exclusively to boys or girls, two sets of questions were used. They were identical except for the aforementioned items.

A master sheet was prepared listing all questions in numerical order. Packs of cards, one color for boys and another for girls, were prepared. One question was printed on the face of each card and a code number on the back. The questions were coded so that the answers could be easily tabulated.

To obtain clues about whether preliminary instructions were clear and the probable performance time, we gave the test to 10 adolescents and 10 adults. The results of these pretests allowed us

to make revisions before the final packs were printed. We changed unfamiliar words to words more commonly used by young people. Repetitious material was removed; however, some questions were phrased differently to check the validity of answers. We eliminated those questions which were considered too difficult or "silly" and those which were classified as irrelevant or controversial. Some questions on environmental sanitation and health education were omitted to keep the test within the attention span of the students.

Screening Procedure

Enrollees were told that the screening was a means of aiding them to determine their health status and health needs. They were also told that their answers would not affect their chance of employment.

Each boy or girl was given the appropriate color pack and a three-compartment gaily decorated box. One compartment was marked yes, another no, and the third, uncertain.

The enrollees were asked to sort the shuffled packs according to how they personally felt about the questions by placing a card in the appropriate compartment. They were also asked not to discuss the questions with each other. Participants were told that questions about their personal health would be discussed with them confidentially after the sorting. We hoped that this impersonal approach would give them, as representatives of rural youth, an opportunity to express their honest opinions about their personal health difficulties and areas in community health that needed correcting.

The enrollee presented his box of sorted cards to a health aide or nurse. All cards in the yes compartment were scanned and any numbers from 18–76 (questions on personal health) were recorded on a key sheet and handed to the enrollee to present to the interviewer. The aide then proceeded to record all numbers from each compartment of the box on a data processing sheet.

The key sheet taken to the interviewer represented the "concern" answers of the enrollee about his personal health. These answers were used as a springboard to assist the enrollee in evaluating his health needs and in considering possible solutions.

The key sheet was retained by the interviewer and suitable comments made for further followup on the young person. Results were based on the yes and no answers. In some categories, the uncertain answers were included in the tabulations of concerns discussed in this report.

The health coordinator held a private interview with each enrollee. Using the concern answers as a guide, she reaffirmed that this aspect of the NYC program was an opportunity for the student to discuss personal health needs and invited the enrollee to talk about his concerns.

We hoped the participation of the student in identifying health needs and developing a plan to meet them would encourage positive health practices. The health coordinator suggested referrals to the physician, dentist, or other health professionals if this seemed appropriate. General health information was given on a one-to-one basis. The interview was usually terminated by the coordinator congratulating the enrollee on being accepted for summer employment and suggesting that he contact the NYC staff if any problems arose during the summer.

Assessment Made

The NYC staff was advised of the results of this assessment of the enrollee's health by the enrollee and the interviewer and given additional notes on the observations of the health coordinator. These observations included the possibility of work limitations, need for individual counseling, desirability of enrichment opportunities for developing group relationships with peers, and other services which could be incorporated into the NYC program to make it one of achievement for the student.

Results

Family and personal histories. Family histories showed that 37 percent of the 377 students had family members who had heart conditions, 23.3 percent whose relatives had diabetes, and 4.7 percent with relatives who had tuberculosis. In many homes one parent was totally disabled. These discoveries indicate a need to screen for early symptoms of disease.

Accidents requiring medical care are shown in table 1. Such accidents were reported by 130 enrollees. Nineteen had a history of rheumatic fever, and six had heart problems. Eight percent of the enrollees had had appendectomies, and 11.8 percent, tonsillectomies.

Medical and dental care. Five percent of our enrollees had not seen a physician to their knowledge. Questioning during the interview revealed that medical care was interpreted by many of

them to mean a physical examination to meet a requirement for sports participation, surgery, or treatment for an acute or chronic condition. Students did not mention periodic medical checkups or any form of preventive care as being a part of their health care.

In addition to the 5 percent who had never been to a physician, 31.3 percent had not been to a physician in more than 2 years; 15.4 percent expressed a desire for a thorough medical checkup when asked if this was considered a need.

The need to see a dentist was expressed by 34 percent of the enrollees, and 5.2 percent had never been to a dentist. During the interview, many of the young people said they were waiting to have all their teeth pulled and replaced with dentures. They stated this was the pattern of dental care followed by older siblings or parents.

Skin. The following skin conditions concerned the young people in our sample.

Skin condition	*Yes (concern)*
Acne	207
Oily skin	111
Allergies	57
Dry skin	40
Itching-oozing between toes	36
Recurring boils	30
Sores, raw surfaces	24
Blisters, scabs about lips or nose	18

Hearing and vision. A loss of hearing was reported by 5.2 percent of these young people, and 31.9 percent stated that they watched the lips of the person talking. Draining ears were experienced by 18.5 percent. A checkup by an ophthalmologist was asked for by 19 percent (73 enrollees). Of young people requesting eye examinations, 54 percent answered yes to questions such as, "Do you blink or squint a lot?" "Do you rub your eyes frequently?" or "Do your eyes water a great deal?"

Heart and lungs. Of the 377 enrollees, 19 had been treated for rheumatic fever. At the time of the screening, six said they had diseased or defective hearts and were under medical care.

The following difficulties relating to the function of the heart and lungs concerned the enrollees.

Condition	*Percent*
Breathing through the mouth most of the time	25.9
Tired a lot of the time	23.2
Chest pain	6.6
Coughing a lot (not due to a cold)	8.6

Table 1. Students' accidents

Place of accident	Total number of yes or no answers	Accidents requiring medical care[1]	Percent of students requiring medical care
Home	364	50	13.7
Work	366	47	12.8
Car	372	33	8.9

[1] Several students had had more than 1 accident.

Nutrition. Basic nutritional status of these youths may be identified by the following food patterns.

Food pattern	*Percent*
Preferred to eat meals at odd hours	27.6
Did not eat breakfast regularly	31.7
Did not eat protein foods daily	9.1
Did not drink milk as a beverage	16.4
Ate only a limited number of vegetables	12.6
Did not eat fruit daily	34.6

Bearing in mind that these adolescents come from a relatively stable population in a farming area, it is evident, not only from the food patterns but also from personal interviews, that some of them suffer from malnutrition.

Of the enrollees interviewed, 72.4 percent ate their meals at regular times. We asked them if they had had "pop" (soft drinks) and candy more than five times a week. Of those who ate meals at regular times, 45 percent ate little candy or drank little pop, 35 percent ate extra candy or drank extra pop, and 20 percent ate extra candy and drank extra pop. Of those who ate meals at odd times, 30 percent ate minimal candy and drank little pop, 30 percent ate extra candy or drank extra pop, and 40 percent ate extra candy and drank extra pop.

Smoking, alcohol. In this group, 27.2 percent of the enrollees said they smoked. This number compares favorably with Brunswick's report (*2*) that one-third of the adolescents in an urban population smoked. Of the entire group, 51 percent drank alcoholic beverages.

Feelings about self, family relationships, and others. To determine if rural adolescents have problems similar to those faced by their urban peers in establishing satisfactory relationships, the enrollees were asked the following questions: Do you feel comfortable about yourself? Do you feel comfortable most of the time with other people? Do you and your family share each other's problems?

In answering one or more of these questions, 199 of the 377 adolescents expressed concern. Interestingly, 16 percent indicated that they did not consider family members necessary to one another. We believe that some of the problems of young people could be resolved more readily with coordinated family care.

Interpersonal relationships. Emotional development of a maturing young person is indicated in how he feels about himself, about members of the opposite sex, and about people older or younger. Questions were asked to determine what the NYC enrollees understood about interpersonal relationships. Table 2 gives some evidence of their understanding of these three areas.

Another facet of the emotional development of young people is their factual knowledge about the physical development they are undergoing at this time. Students were questioned to gain some insight into their understanding of the physical aspects of puberty. Their responses are shown in table 2.

Of the enrollees who were asked if their parents had described to them the sexual changes which come with puberty, 33.6 percent answered yes, 59 percent said their parents had not discussed these changes with them, and 7.4 percent did not understand the question.

Information of special interest to young people. Rural NYC enrollees expressed preference for discussion rather than lecture-type health information. The following problems were of paramount interest to them.

Table 2. Understanding interpersonal relationships and physical aspects of puberty

Questions	Answers (in percent)		
	Yes	No	Uncertain
Do you know the meaning of physical attraction between sexes	34.5	46.4	19
Do you know the meaning of infatuation	29.5	57.2	13.1
Do you know the principles of good relationships between the sexes	80.6	14.4	4.9
Do you know about primary sex changes of puberty	42.3	41.5	16.1
Do you know about secondary sex changes of puberty	32.6	47.6	19.6
Do you know about body changes brought about by special hormones	36.8	48.1	15

Problem	*Percent*
Drugs and drug addiction	67
Control of acne	50
Use of alcohol	55
Hair grooming	50
Weight control (either reduction or increase)	62
Smoking	44

Health and well-being. Some indicators of factors which may dampen youthful enthusiasm may be reflected in the following tabulation.

Condition	*Percent*
Lack running water in home	6
Feel tired a lot of the time	23.2
Have frequent headaches	11.2
Have foot trouble	10
Concerned about underweight	13.9
Concerned about overweight	33.2

Correlation of health knowledge and health practices is implied by these responses.

Response	*Percent*
Agree that bathing controls body odor	97
Bathe regularly	97
Agree that brushing teeth is important	96
Brush teeth regularly	78
Think keeping yards neat important to the community	97
Help maintain their own yards	95

Emotional problems concerned 42 percent of the young people who felt they would like to discuss their emotional difficulties with someone. The need to discuss dental problems concerned 25 percent.

Referrals

If health problems existed, it was necessary to establish during the interview whether the student and his family were financially able to take care of them. If they could not, the health coordinator made the necessary recommendation to the NYC director for followthrough. The types of problems, number of students, and recommendations of the health coordinator were as follows.

Special work assignments were given to nine students with allergies, recent back injuries, or recent fractures. The assignments were based on known limitations or the advice of a physician or surgeon.

Twenty-five students had possible impairment of vision or their eyeglasses needed adjusting. Appointments for examinations were arranged and, if needed, glasses were supplied.

Appointments were made for 35 students who had draining ears, earaches, or obvious infections

or who were underpar physically. The order of referral was based on the immediate need for evaluation by a physician. The 35 had a total of 49 health problems.

Dental care was arranged for 59 students whose dental problems ranged from repeated toothaches, extensive caries, or poor mastication of food. Emergency care was given as needed. Examinations and estimates of cost of dental repair were given to other students.

Seven students were referred to NYC counselors and for followup psychiatric care if needed. Emotional difficulties of the students consisted of extreme concern about going into service and the war, dejection, loss of confidence, and major conflicts with parents, foster parents, or peers. Several showed evidence of habitual drug use. NYC counseling was given throughout the summer to many more students.

The seven young people referred for immediate attention of the NYC counselors represented only a fraction of the number finally identified by the counselors as needing counseling during the school year. Twenty-four percent of the enrollees in the summer program were referred for additional counseling during the school year. Screening and followup with parents limited payments for professional services to those whose families were unable to finance these services or those for whom no other funds were available. The funds allocated for health needs of these adolescents were quickly exhausted. Less than 20 percent of the group were given medical and dental care, and the care represented only minimal services.

Discussion

In this pilot project we hoped that, in addition to meeting the most urgent health needs, sufficient information would be collected to glean, prune, and develop an effective screening tool for the future. Since lengthy questionnaires and formal interviews sometimes dampen enthusiasm, these issues were considered in developing the tool. In addition, by requiring the student's participation in assessing his present health status, we hoped it would prepare him for the subsequent interview with a trained interviewer.

Brunswick's trained interviewers used a structured plan to interview each adolescent at home (*2*). The San Jose study combined a health questionnaire, laboratory tests, and when indicated, a physical examination by a physician for inschool enrollees (*3*). The screening procedure we used was designed to identify the broad spectrum of health concerns in this group. We hoped that the results would provide a basis on which to plan future health services and that the combination screening and interview would make the experience meaningful for the enrollees.

The young participants cooperated enthusiastically. Their attitudes during the sorting and their participation during interviews with the health coordinator showed their interest and support for this method of screening. Time and patience during the interviews sometimes brought to light facets of the young persons' health which were important. Many young people spoke not only of personal needs but of family needs as well.

We also felt that the screening procedure was educational. Placing the cards in yes, no, or uncertain compartments made the enrollee think about his health, thus defining in a limited way his health status. The interview provided a one-to-one health experience for the adolescent in relation to self and family, or both. The list of rural young people's needs (see box) stems from our experience in this screening project.

Needs of Rural Young People

They need safety awareness programs designed especially for them.
They need opportunities to develop intrapersonal and interpersonal relationships.
They need sex education programs that include information about reproductive functions.
Diabetics need practical education about nutrition.
Young women approaching motherhood within a few years need information on nutrition.
Snack eaters and special diet-conscious young people need more information on nutrition.
They need discussions, not lectures, about good health.
They need parents to participate in health education.
They need parents who can communicate with their children.
Their parents need information on farm safety, sex education, and family life that they can impart to their children.

REFERENCES

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A health screening program for Neighborhood Youth Corps enrollees was designed to determine whether it would be possible to screen rural adolescents for health needs and to make preliminary plans for them to meet these needs. Students who had registered with the NYC from a seven-county area in rural west central Wisconsin were screened. The 162 boys and 215 girls were white, between the ages of 15 and 18 years, and members of a relatively stable farm and small-town population.

A card-pack questionnaire and a personal interview with the health coordinator gave each young person an opportunity to review his health status and to discuss his concerns. All answers to questions were tabulated by computer. A review of the answers gave clues to family and personal health, health knowledge, health practices, concepts of community health and indicators of interpersonal relations. Because of budget limitations, specially trained paramedical and agency personnel did the screening, allowing use of existing funds to pay for needed professional care. Of the enrollees participating in the summer program, 24 percent were referred for additional counseling.

Five percent of the teenagers had never been treated by a physician and 31.3 percent had not been to a physician in more than 2 years. Thirty-four percent expressed a need to see a dentist; 5.2 percent had never been to a dentist. Recommendations for followthrough were made for 149 health problems.

The amount allocated for health needs was quickly exhausted. Less than 20 percent of the young people in this group were given medical and dental care, and this percent represented those receiving only minimal services.